

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

Best Management Practices Powerline and Small Construction Sites

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**American Energy Corporation
Shaft and Powerline Construction
Storm Water Pollution Prevention Plan**

a. Runoff Control Practices (BMPs)

Flow of runoff from disturbed areas will be controlled to prevent erosion from occurring.

i. Diversion Channels

Diversion channels will be used to direct sediment-laden runoff to route runoff from undisturbed areas away from disturbed areas and divert runoff as necessary to maintain non-erosive flow velocities. Diversion will be used along the outer limits of the clearing line and excavation and stockpile areas.

Construction of the diversion ditches shall meet the design specification given in the Ohio DNR's Rainwater and Land Development Manual, 2006, including the incorporation of check dams, if appropriate (i.e. steep slopes), or meet Engineers designs for the site when applicable.

Roadside berms constructed during haul road construction will also serve as diversion channels, directing water along the road shoulder to an appropriately designed outlet.

ii. Check Dams

Rock check dams will be used in small open channels, such as in the proposed diversion ditches where it is necessary to slow the velocity of flows in order to prevent erosion. Check dams must not be relied upon to remove sediment from runoff flowing through a channel but rather are intended to reduce erosive flow

iii. Downchutes

Trapezoidal downchutes will be used to convey flows down steep slopes, where the use of diversion channels is not appropriate or feasible given site constraints. Downchutes shall be constructed with appropriate lining systems (e.g. rip rap, gabions) to prevent in-channel erosion. Downchute outlets shall be equipped with energy dissipation structures to prevent downstream erosion. Check dams, staircase design or other measures shall be utilized to control flow velocities in the downchute channels, if necessary.

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iv. Slope Drains

Temporary slope drains (typically flexible or rigid pipe appropriately anchored at the top and bottom of the slope) will be used, if necessary, on steep erosive slopes where runoff is collected to prevent erosion and convey runoff down the slope.

v. Water Bars/Broad Based Dips

Water bars will be used to direct runoff roads and prevent it from accumulating and causing erosion. Water bars are typically used across construction entrances, on long or steep access roads, temporary construction roads, or utility right of ways that do not have a stable surface where runoff would otherwise collect in erosion flows.

Broad Based Dips are specifically designed to drain water from an access road while allowing vehicles to maintain normal travel speeds. Broad Based Dips are used on truck haul roads and heavily used skid trails generally having a gradient of 8% or less.

Concreted flows diverted off roads shall discharge to a sediment trap, as detailed in Section III d(ii).

vi. Wing (Lead Off) Ditches

Wing (Lead Off) Ditches are used where water could accumulate or accelerate. The water should be diverted onto undisturbed areas so volume and velocity is reduced. They should not feed directly into adjacent drainages, gullies, or channels.

vii. Culverts

Culverts shall be used to collect and transmit water safely from side ditches, seeps, or natural drains under haul roads without eroding the drainage system or road surface.

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b. Sediment Control Practices (BMPs)

i. Sediment basins

Sediment basins will receive runoff directed from disturbed areas. Each sediment basin will be sized to provide storage of at least 67 cubic yards of runoff per acre of drainage area. The sediment basin outlet structures will be designed to discharge-collected runoff at a controlled rate, permitting storm water-borne sediment to settle out prior to discharge. The entire sediment basin will be removed when construction is complete and the drainage area is stabilized.

ii. Sediment Traps

Temporary Sediment traps shall be used to provide sediment control at points of flow concentration, including but not limited to locations within the active construction areas where flows converge due to grading, or at discharge points along the haul roads. Regular, appropriate maintenance of these facilities is necessary to facilitate effective operation.

iii. Silt Fence

Silt fencing will be installed where runoff occurs as sheet flow or where flow through small rills can be converted to sheet flow (see Sediment Traps for an appropriate small-scale control measure where flows are concentrated). Silt fence is most applicable for relatively small areas with flat topography. Silt fence will be installed as a perimeter control along expanded and new haulroads and about the downgradient perimeter of the staging area and earth disturbing activities (e.g. cuts, fills, stockpiles).

iv. Inlet Protection

Storm water inlets are generally not utilized in these types of operations, but in the event one is needed it will have the proper inlet protection. The edges of the inlet shall be re-enforced with either rip rap or concrete to prevent erosion and seepage along the inlet device. Where deemed necessary the proper trash build-up prevention devices will be placed to prevent plugging of the inlet.

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v. Stream Protection

Although not anticipated, if any work is performed in or near any streams, rivers, lakes, wetlands, or other surface waters, certain construction activities at the site may be regulated under the CWA and/or state isolated wetland permit requirements. If the site contains streams, rivers, lakes, wetlands, or possible wetlands that would be considered jurisdictional, the permittee must contact the appropriate U.S. Army Corps of Engineers District Office.

When it is necessary to cross (ford) streams, they shall be crossed at right angles. If a live watercourse must be crossed more than twice in any six-month period, a temporary stream crossing made of non-erodible material must be constructed.

Streambeds, flowing or dry, shall not be used for construction roads. When work in a live watercourse is performed, precautions shall be taken to minimize encroachment, controls sediment transport, and stabilize the work area to the greatest extent possible.

Applicable federal, state, and local regulations pertaining to working in or crossing live watercourses or wetland areas shall be met.